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ABSTRACT

An analysis of the IBM/NEA Mastery in Learning (MIL) school renewal system, an electronic network that involves school faculties in collegial interaction with researchers and other educators in school reform, is the purpose of this paper. Developed by IBM (International Business Machines) and NEA (National Education Association), the MIL is a site-based, faculty-led reform in which 26 schools participate nationwide. Although local faculties design their own agendas, the MIL project design specifies standard phases of implementation. Specific research questions are concerned with assessing changes in program use and content, the influence on interaction between research and practice, and the impact on school reform. Data were collected from computer log files, printouts of network papers, and telephone interviews with 44 focal participants. Conclusions point to the need for local support, an organized network structure, improved time and access, provision of participant incentives, and attention to substance. Computer network systems provide the "medium" for activities; however, they must meet participants' needs and support their work. Appendices include statistical tables of the data, a model of the school renewal computer network research design, and a copy of the survey instrument. (18 references) (LMI)

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Linking Research and Practice for Site-Based School Renewal

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Linking Research and Practice for Site-Based School Renewal

The first wave of school reform focused on raising standards, increasing accountability, lengthening the school day, and increasing the rigor of public schools (Michaels, 1988). Technology was used in classrooms to drill students in the basic skills, aid in programmed instruction, keep records of progress, and reward learning and behavior. It was used in administrative offices to streamline recordkeeping and scheduling. This narrow conception of schooling has resulted in more top-town decision making that is increasingly far removed from the needs of students, teachers, and communities.

The second wave of school reform, now in process, has a different agenda: school-level decision making; collegial, participatory environments for students and faculties; personalization; flexible use of time; student understanding beyond mere recall; and higher-order thinking skills (Michaels, 1988). These are the elements of new and different models of schooling.

This paper is about a technological application that uses and supports the elements of second wave school reform. The IBM/NEA-Mastery In Learning School Renewal Network is an electronic network involving site-based-decision-making faculties in collegial interaction with researchers and other practitioners about school reform. It works to dispel the myth that using computers principally affects instruction and does not have large implications for other aspects of teachers' work (Kerr, 1990). The network facilitates the expansion of professional roles basic to second wave reform: educators as collaborators, mentor/mentees, planners, researchers, and seekers (National Foundation for the Improvement of Education: Christa McAuliffe Institute, 1988).

Rationale and Description of Activity

Mastery In Learning Project

The NEA Mastery In Learning Project (MIL) is a site-based, faculty-led school reform initiative completing its fourth year (MIL, 1988; 1989). Twenty-six demographically

representative schools across the country are involved in identifying and addressing their own particular reform agendas.

Although local faculties design their own renewal agendas, the MIL project design specifies the phases (see Figure 1):

Phase 1: PROFILING THE SCHOOL (several weeks). A description of the school is created to serve as a benchmark. Structured interviews with teachers, students, parents, and administrators provide data to describe the school on the day the Project begins.

Phase 2: INVENTORYING THE FACULTY (several days). Through a series of group and individual activities, the school faculty establishes initial priorities for improvement. It begins the process of building the collegiality necessary for faculty-led renewal.

Phase 3: EMPOWERING THE FACULTY TOWARD RENEWAL (two to three years or more). The faculty works to create the skills, attitudes and inclinations necessary for sustained inquiry into the assumptions and practices that define their school. They organize working committees and coordinate their efforts through a Steering Committee. Using the knowledge base--research, theory, ideas and materials from good practice--the school staff explores improvement options and then designs, pilots, and revises specific programs or interventions.

Phase 4: CULTIVATING COMPREHENSIVE CHANGE (ongoing). Having developed a clearer sense of the nature of learning, teaching, curriculum, and school culture that corresponds to their vision; and having developed skills and habits of collaboration and collegiality; the faculty moves from fragmented activities to comprehensive change. They transform the school into a self-renewing center of sustained inquiry (McClure,1989).

Research-Practice Interaction

MIL is unique among school reform projects in that sustained attention is given to using the knowledge base for informed decision making, making research-practice interaction the norm rather than the exception. At MIL the knowledge base includes theory

and research, good ideas, and practical wisdom. Consideration of the knowledge base informs each faculty's decisions about the best innovations for its school.

Problems exist, however, in using research in school settings and in sharing the largely uncodified wisdom of practice. Using the knowledge base is a task for which teachers often have too little time, access, and understanding (Berliner, undated) and too few models that link research to contextual factors affecting the change process. To empower teachers to use a constantly growing knowledge base requires (among other things) contextually-sensitive research utilization models (Shulman, 1987). Specific problems in practitioner use of research findings include perceptions of limited utility, negative past experience with researchers, difficulty of applying generalized findings to specific situations, time constraints, information overload, organizational and workplace factors, lag time between research production and application, lack of skills in interpreting research, the reactive (rather than reflective) orientation of educator's daily work, lack of focus about what research is needed, and misapplication of research to practice (Fleming, 1988). Data collected from MIL faculties revealed the following practitioner messages to researchers: solicit research articles from practitioners, tone down the jargon (or help us understand it, or let us help create it), and treat teachers as peers (Jaquez, 1989).

Teachers use their experience to mediate between generalized research findings and application in specific situations (Schnesk & Rackliffe, 1989). Yet, neither the practical wisdom of teaching experience nor this application process has been codified. Many MIL schools are working on similar innovations, yet they have found themselves unable to share their growing expertise.

During its initial stages, the MIL staff and school faculties attempted to address these difficulties (Castle, 1988; Livingston & Castle, 1989). Location, organization, and summarization of research and resources on each school's priorities were provided through the central Project office; each school had a site-based consultant to assist with research access and use; and each school had a substitute bank to provide time for teachers to read

research, discuss the evidence and consider its implications for their school, and create action plans for innovation. Even with these resources, particular obstacles continued to exist: applying generalized findings to particular situations, lack of research in certain areas of inquiry, lack of skills in interpreting or conducting research, lack of time for reviewing and summarizing a body of research, and unavailability of research findings and methods that addressed the complexities of school renewal. MIL held annual fall conferences for the purpose of sharing experience and expertise, but practitioners had few avenues for follow-up.

Sustained practitioner interaction was needed across a broad geographic area to share practical wisdom; researcher-practitioner interaction was needed to use the knowledge base in complex, contextually rich, yet diverse, settings. The MIL practitioners were eager to learn with and from researchers; and we suspected that researchers could learn with and from these highly-engaged practitioners about research in the practical world. This interactivity seemed crucial to integrating research and practice for the purpose of reforming schools. Because of the geographically diverse area covered by the MIL sites (20 states from Maine to Hawaii), the MIL staff began to investigate the possibility of using technology to connect teachers and researchers. The idea grew into the IBM/NEA-MIL School Renewal Network.

Computer Networking

Although computer conferencing was fairly new, we were able to find sufficient evidence of its documented impact to further investigate the possibilities of an electronic network. The Office of Technology Assessment concluded that technology did indeed hold the kind of promise for which we were looking (OTA, 1988). Toles (1983) reported that conferencing influenced the development of community, both electronic and nonelectronic (near the computer station). Phillips & Pease (1985) concluded that many of the important issues relevant to computer conferencing reflected basic human communication patterns and found that one of the most successful aspects of conferencing was the "open forums for

frank discussion" (p. 10). A comprehensive assessment of computer conferencing as a staff development tool for the province of Ontario concluded that, given the background of these existing problems and the nature of both adult learning and new technologies, the potential of computer conferencing/networking was attractive: computer conferencing had major potential for the delivery of professional development to teachers; it represented a powerful medium to support collegial interaction and the change process; and that there is a need for such activities in the field of education (Harasim & Johnson, 1986).

Unanswered research questions existed also regarding what was involved in beginning a network; software, hardware, and design issues; user behavior and support; management of a network; effectiveness in attaining network purposes; and impact on the professional lives of the users (Harasim & Johnson, 1989). They also concluded that the only way to answer such questions was the planning, development, implementation, and evaluation of actual networks. Problems to anticipate were also specified in the literature: technical problems/failures, poor participation by some individuals, elitism, lack of experience with telecommunications software, lack of available hardware in schools and universities, and lack of budgetary ways to institutionally support computer conferencing (Phillips & Pease, 1985; Morrison, 1987). Most studies found that additional contact outside the network needed to be maintained for the establishment of a truly interactive community.

The IBM/NEA-Mastery In Learning School Renewal Network

The primary purpose of the School Renewal Network is to create an interactive research base on school reform by a community of actively-engaged practitioners, researchers, staff developers, and disseminators. The Network is designed to address the following needs:

a) location of and access to research and other resources;

b) interaction between researchers and practitioners around the use and generation of research on school reform innovations;

c) dialogue about issues central to school reform work (such as site-based decision making);

d) data gathering and analysis;

e) efficient communication across MIL.

After more than two years of planning and negotiating, the School Renewal Network began in October, 1988. The School Renewal Network, an asynchronous teleconferencing and messaging system using PCs, represents the first electronic network dedicated specifically to school reform. The Network began during the third year of MIL with a training session in Washington, DC. The structure for the database was based on the commonplaces of schooling: Teaching, Learning, Curriculum, and School Culture (see Appendix A). At this point, the schools had identified their improvement priorities and had spent at least one year using the knowledge base to investigate those priorities and design action plans. Network participants included the 26 MIL schools, 7 federally-funded research laboratories and centers, 7 major universities, and 7 schools from other networks (The Coalition of Essential Schools, The National Network for Educational Renewal, and the NEA Learning Laboratories).

IBM provided hardware, software called PSInet (People Sharing Information Network), and technical support. MIL provided personnel, overhead, demonstrations, initial training, information resources, and server maintenance. Each site provided a Network coordinator, training for faculty members, and telephone costs.

The second year we obtained grant funding from the Secretary's Fund for Innovation in Education at OERI to further develop the Network. Planning for network revision began at MIL's annual fall conference and was completed at the Network conference at the IBM facilities in Boca Raton, Florida. The additional (OERI) funding enabled us to focus the research-practice dialogue by selecting and defining 10 critical topics and engaging a researcher for each topic. The critical topics represent seven of the most often identified reform topics across the 26 MIL schools: **Parent Involvement, At-Risk Students,**

Curriculum Design, **Positive School Climate**, **School/Classroom Organization**, **Instructional Strategies**, and **Thinking**. In addition, they include **Networking**, which grew from the initiation of the Network; **Restructuring/Site-Based Decision Making**, which is foundational to MIL and the Network (and one of the Secretary's priorities); plus, the most recent common concern across MIL, **Authentic Student Assessment**. Each practitioner site chose two or three topics on which to focus--topics in which they had experience and expertise, as well as ongoing action projects. Each topic was defined and delineated at the December meeting by the practitioners along with the researcher responsible for that particular topic. After the meeting, the conference and session structure was changed to reflect the ten topics and their definitions (see Appendix B). In addition, the grant provided for a consultant to the researcher group and one to the practitioner group to facilitate the interaction among participants in each role. Figure 2 maps events significant to the development of the computer network in the context of the Project's focus on research-practice interaction.

Statement of Problem and Research Questions

The research problem, which is derived from the School Renewal Computer Network's research design (see Appendix C), is to track the Network's development and evaluate its contribution to research-practice interaction within a school reform context. Specific research questions are:

1) Use: a) How has Network use changed over time?
   b) What factors have facilitated use?
   c) What factors have hindered use?
2) Content: How has the content of Network conversation changed over time?
3) Research-practice interaction: How has the Network influenced the research-practice interaction?
4) School reform: What is the impact of the Network on school reform? Why is this so?

Method

Participants

As mentioned in the previous section, network participants include practitioners and researchers from across the nation and MIL support staff. In addition, there are IBM technical sites and network observers (including "invisible" users). It is important to clarify that the workstations represent user sites (in many cases, representing a group of users or a faculty).

Network sites (users) were classified into several functional units for this investigation. **Focal users** are the practitioner sites and the researcher sites (universities and OERI laboratories and centers) because researcher-practitioner interaction is the focus of the network. **Primary users** include MIL practitioner sites, researcher sites, MIL staff, and IBM support sites. (The number of workstations/sites in each category will be discussed in the Results section with reference to changes in use).

Data Collection/Sources

Data were derived from three sources: (a) computer log files, (b) print-outs of network papers for content analysis, and (c) interviews with the focal participants. Table 1 displays the data sources for each research question.

Log files and papers were obtained for four month-long periods comprising a purposive sample of network activity: (a) January 1989, the first period by which most initial users had signed on; (b) April 1989, the period immediately following MIL's annual AERA breakfast meeting at which participating researchers were provided additional Network information and urged to contribute to the Network interchange; (c) mid-October to mid-November 1989, the thirty-day period immediately following MIL's annual fall conference at which Network planning took place; and January 1990, the first full month of activity under the new Network conference and support structures. (These time periods will be designated by the abbreviations J '89, A '89, O-N '89, and J '90, respectively.)

Log files. Daily log files are created by the PSInet server and stored as DOS text files. The data in these log files enable us to determine types of user activity and patterns of use across different types of users and network functions. Daily network activity involves primarily two forms of communication: messages and papers. Messages are "private" communications in the sense that they are directed by the originator to specified sites; messages are not archived by the file server. In contrast, papers are "public communications which are distributed automatically to all users who have joined the session in which the paper was sent.

Printouts of network papers. Network papers are printed out daily and filed by the Network Sysop (systems operator). Those papers reveal the user source, communicative focus (question, response, information, etc.), content, and dialogic nature of the public communication over the network. Such information provides insight into the nature of research-practice interaction and the school reform impact of the Network.

Interviews with researcher and practitioner users. An interview protocol was designed to obtain focal user perspectives on the Network and its effectiveness. Based on our experiences to date (including formal feedback from the Boca conference), we designed questions to probe issues of potential impact on our research questions. Issues included conference and session membership, location of workstations, additional workstations, faculty/staff usage/involvement, training, information dissemination, use of OERI money, data base development, message and paper activity/contributions, Network facilitators and inhibitors, knowledge use/generation, technical comfort, and recommendations. (The interview protocol is provided as Appendix D.) All but one researcher (n=12) and all practitioner users (n=32) were interviewed by telephone in early February 1990.

Data Reduction and Analysis

Log file analysis. In a pilot analysis, we hand-tabulated information from the April log files to create tables of daily network activity (messages and papers) by site, message activity by user type, and paper activity by user type. Subsequently one investigator created

a C-language computer program to read input log files and create an array consisting of workstations along one dimension and information about use along the other dimension.

Using this program, we created an array for each of the time periods under study. From these arrays we created tables corresponding to those developed for the April data and calculated statistics relative to use. We searched for patterns across user types and over time for general network, message, and paper activity. The data arrayed also provided us with information important to SYSOP facilitation of network activity such as individual site usage and potential transmission problems.

Content analysis of papers from the Network. To analyze content patterns in the papers (the public information) on the network, we organized and examined printouts of all papers sent during each of the four time periods. Each paper was classified by conference and session, paper category, user category, and content category. (Conference and session designations are assigned when the user sends the paper over the network.)

The paper category was determined by the researcher: requests or questions for specific information or assistance (R/Q); answers or responses to those questions and requests (A); information offered, not in response to a request (I); discussion, deliberation, or open-ended questions posed to stimulate dialogue (D); and a miscellaneous category which included student use of the network (O). In addition, we noted whether the papers were misplaced (in an incorrect conference or session), utilized the form-fill function of PSInet, or referred people to other papers.

For this analysis, users were grouped into two broad categories, practitioners and research/practice supporters. (The latter group consists of researchers, staff members, and others whose goal it is to stimulate or support the research/practice interaction.)

The content category system was derived through an iterative classification process. Initially we summarized the content of each of a sample of 30 papers (representing a variety of sessions, users, and dates of transmission). These summary phrases were refined into a set of content descriptors. A second sampling of 30 papers was coded by these

descriptors, and additions and refinements were made to the codes. Finally the entire set of papers was classified according to the descriptors in Table 9. Generally, a paper was given only one content descriptor unless it contained several distinct areas of focus. The **Resources** classification was used as a second code when a paper requested or supplied specific educational resources; likewise, **Current Instructional Practices**, and **Examination of Current Practice** were applied as secondary descriptors.

The researcher developed tables to array conference and session activity by paper type for each of the four time periods; paper activity by content over time; and paper activity by content and major paper category over time for all network users and for practitioner users.

Simultaneously with the content classification, we noted patterns of conversation across papers. These were represented on annotated node-link diagrams (see Figure 3 for examples). We tallied conversations by length across the four time periods (noting type of participant) to represent the development of network conversation patterns over time.

Interviews. As a first step in interview analysis, responses were listed by question for each of items on the protocol. From the range of responses on these lists, we developed categories for each question. Then, for researchers and practitioners separately and for the focal participants as a whole, the interview responses were tallied according to the category system. The resulting tallies for each question provide information about each group and for the Network overall. (The interview summaries were not analyzed with regard to paid versus unpaid researchers or between MIL and non-MIL schools.)

Results and Interpretation

Network Use

Current use. The interviews provided insight into the current extent of use at each site. In 30% of the sites only one person uses the Network. (This was the case for 67% of the researchers and 16% of the practitioners.) In 77% of the sites, four or fewer people

actually use the computer workstation. In 50% of the sites, the workstation is also used for word processing or data base management.

Messages and papers are received only when the workstation dials the server. 53% of the users dial in two to three times per week, and only 6% reported calling only once per week. The software can be set to dial at night, and 43% report taking advantage of this cost-saving feature.

The use of the Network as a knowledge resource is strengthened by the software's data base capabilities. Papers and messages must be inserted into the data base at each site for permanent storage. Thirty-four percent of the practitioners reported inserting all papers. Slightly less than half of the users reported that they insert "most" of the papers (practitioners--41% and researchers--33%) and 25% replied "some." Slightly over one-third of the users reported that they print most of the papers (practitioners--41%). There was great variance in the printing and handling of messages, and a smaller percentage were saved in the data base.

Change in use over time. Between January 1989 and January 1990, network membership within the primary user groups increased 27 percent; this increase was only 17 percent if additional workstations for existing MIL schools sites are excluded (see Table 2). By Spring of 1989, 75% of the focal users had signed on, and by December of 1989, 98% were logged on with the file server.

Network use has increased over time. Table 3 illustrates an overall increase in calls to the file server and greater message and paper activity. The focus of network activity has also changed. The 20 % increase in message contributions (messages sent) is negligible when the membership change is considered. However, the 161 % increase in paper contributions (papers sent) is considerable. The message/paper contribution ratio changed from nearly 6:1 to less than 3:1. Initially, participants were free to join sessions of their choice, but after the Network reorganization, users were asked to join all of the conference sessions (even

though their primary responsibilities resided with only two or three of the conferences). At the time of the interviews 77% of the focal users had joined all sessions.

At its onset and throughout the first three time periods investigated, network use was dominated by MIL sites--practitioners and staff. The researcher-practitioner dialogue intended was not occurring. This balance changed in January of 1990, with the researchers assuming a more active role and the MIL staff assuming less leadership in network activity. Table 4 illustrates the changes in network contributions by the primary user groups.

The decrease in IBM and MIL staff messages probably reflects the decrease in need for technical support, while the increase in researcher messages probably was stimulated by the personal interaction at the Boca conference and by the OERI monetary support. The increase in the number of papers sent and received reflect the better-developed data base, particularly after the restructuring of the network. It also indicates as greater mastery of the technical/procedural facets of network use, and for practitioners, more psychological comfort in "speaking publicly." The Network made a significant shift from messaging as the primary activity toward use as the knowledge resource for which it was intended.

The non-MIL schools are considerably less-frequent users, perhaps because they have been less involved with MIL activities and know fewer of the other participants. The Network holds potential for planning and dialogue around special projects, but these are yet to be developed.

Factors Facilitating Network Use.

Table 5 summarizes the common responses about network facilitation. Those responses are discussed below. In addition, categories emerged from other questions.

Location of network workstation location. Interview respondents reported that workstation access and convenience were major factors. Researchers tended to have their workstations in convenient locations; approximately half have them in their homes. Only 12.5 % of the practitioners report additional workstations at home, while 83% wish they had home access to the Network. Locations of the school workstations were nearly equally

distributed among the school office, teachers' room, network coordinator's room, and the computer/media center. The coordinator made the location decision in almost 60% of the cases and based this most often on convenience. In 27% of the sites security was a factor and in 23%, access to phone line was a determinant.

Training and interaction. Training on the network was reported to be the most facilitating condition. MIL provided training for the MIL school network coordinators at two national conferences. Face-to-face interaction during these training sessions gave meaning to the names on the user list, established common interests, and helped eliminate reluctance to "speak publicly." MIL staff were also mentioned in these contexts.

The bulk of training responsibilities on-site falls on the network coordinator. The extent and success of this training enhances or constrains faculty participation.

Money from OERI. The OERI grant facilitated use in several ways. The stipends for researchers contractualized their role, and the hiring of researcher and practitioner moderators facilitated participation by both groups. The Boca Raton conference enabled face-to-face interaction and participant involvement in decisions germane to the structure and operation of the revised Network.

The stipends from the grant have been applied in a variety of ways--e.g., as released time, reimbursement for time spent, supplies and phone costs, and hiring an outsider to work on the network. It is unclear to what extent the money facilitates network use. In approximately half the sites, the use of the grant money had not yet been determined. In school sites, the decision is most frequently a faculty or steering committee decision. The lines are clearer for researchers; payment is made either to the person or the organization.

Paper length. There was some conversation over the network about the value of reducing paper length. When posed this issue, 70% of the respondents believed length was not an issue, or that it must be determined by the content of the paper. One person pointed out that the discussion of the issue made people more aware of the need to be concise and keep costs down.

Evolution. The network has evolved with time. The first year, "practice" was identified as a facilitator. The better defined topics and fuller data base have provided meaning and relevance to network operations in the second year.

Activity and the content focus of the Network have increased with the users' technical proficiency. Fully 84% reported comfort with the software, having difficulty only with unexpected "glitches" such as equipment failures. Only 27% reported that they have no questions about PSInet, however. Several reported the readiness to move on to more advanced features of PSInet.

Familiarity with other networks. Over half the participants reported familiarity with other networks which may enhance their understanding of and willingness to use PSInet. General familiarity with computers also minimized "network phobia."

Obtaining responses. Participants reported that 83% of the requests they made received responses, and that this encourages them to continue using the system.

Technical documentation. The production of easy to use guides and resources for PSInet and the network structure was also identified as important.

Factors Inhibiting Network Use

Common categories of response to the issue of inhibitors to network use are tabulated in Table 6.

Time and workplace obstacles. Time is clearly the most inhibiting factor and has a number of dimensions. Time is becoming a larger issue as network activity increases. There is more reading and communication management following transmissions before responses can be made. Practitioners discussed the busy, tense, workplace nature of the school and the many interruptions--a reactive rather than a reflective environment. Of them, 83% believed that a workstation at home would provide a more relaxed and uninterrupted atmosphere.

To share the responsibility with others requires that the network coordinator provide training at the school site on his or her own personal time--time which is already unavailable. Over 70% of the interviewees reported this dilemma.

Experience, knowledge, and fear. Difficulties arising from a lack of experience with computers and the PSInet software and technical computer problems were concentrated in the first year of Network operation. These inhibitors were not as central in year two. A small percentage of practitioners remain frightened of the computer, however.

Role clarity. The issue of role clarity for the researchers was discussed as a dilemma at the Boca conference and appeared in the interviews. Specifically, the researchers wonder whether or how to challenge practitioner positions presented over the network versus whether their role should be largely information provision. For some, the rangy content of the network seems problematic to quality deliberation.

Other obstacles. Learning the PSInet software presented challenges for many users, and they gave suggestions for its future modification. These included improving the editor, keyword procedures, and browsing user abstracts function. Several mentioned that we have specified too many keywords.

It was suggested by 11% that we increase the number of users (especially researchers) to enhance the dialogue. Others mentioned the uncertainty about the future of the network or their participation inhibited their involvement.

Finally, 50 % of the MIL school sites reported that the cost of network telephone time was a concern for them.

Change in Content of Network Papers over Time

Paper type. Classification of the papers for each time period into requests/questions, responses/answers, information, or discussion/deliberation reveals that the nature of network communication changed as the network developed. Refer to Table 7 for details. Initially, requests and responses were out of balance. Nearly half of the papers were requests or questions (and virtually all of them from practitioners), while only 15% were

responses (5% practitioner responses). The notion of teachers as contributors to the knowledge base was not in operation.

By January of 1990 the types of papers were more nearly balanced; indeed, the percentage of responses exceeded that of the requests. Announcements of resources and information provision became the dominant type of communication. Discussion--the deliberative, reflective category--rose to 20 %. (It was higher in October when the form and function of the Network were under discussion and people's interests were more issue focused.) In January 1990, discussion and responses together comprised slightly less than half of the papers, suggesting greater involvement and dialogue across parties.

Conversation length. Another way to examine network dialogue is to follow and map the development of conversations. Table 8 illustrates conversation development over time. The bulk of conversations remain one link in length--that is, they are a question followed by a single answer or a request with one response, and then they end. Conversations are beginning to develop and track more extensively, however.

Substantive content: One of the difficulties in stimulating dialogue on the Network is the wide range of issues important to practitioners engaged in school renewal. (See Table 9 for a listing of papers by content.) The papers on the network represent topics in all four of the commonplaces (teachers, learners, curriculum, and context). Great breadth limits depth; this was particularly a problem in the earlier periods investigated.

By January of 1990 there was greater interplay between researchers and practitioners, and practitioners increasingly provided information and responses, as well as questions. Tables 10 and 11 demonstrate this development. Despite the great variety of content and user activity portrayed, a few patterns stand out. (a) Again, attention to network issues was strongest in the October-November period during planning for Boca; (b) the topics defined at the Boca conference to structure the new network have stimulated participation from both researchers and practitioners during the final period; (c) practitioners have become increasingly comfortable, willing, or interested in sharing their own approaches

and experiences as reflected in the "Current Instructional Practice" category, but pre-existing resources and programs are also the topic of many papers; and finally, (d) providing for at-risk students appears to be the most frequent substantive topic.

Network contributions became more clearly stated over time. In particular, questions and requests became less global. Consider, for example, a request sent in January 1989: "How are reading teachers being used in other schools?" This query received no responses, perhaps because the question was too broad and open ended. As the network matured, the users put more information into their requests to clarify them or to share existing practices as a discussion starter.

In general, across all time periods, practitioners posed questions and provided information specific to particular situations and oriented toward action. Not surprisingly, researchers' contributions tend to be more general, looking across situations for patterns and contrasts.

Did the Network Facilitate the Use of the Knowledge Base?

When posed this question, 70% of the interviewees responded in the affirmative. Researchers, however, were more evenly divided in their assessment. Several remain concerned about the significance of the topical information and about their roles in the dialogue.

Although the level of faculty/staff use of the Network (beyond the computer coordinator) is low, respondents reported ways in which they involve others with the network information and knowledge. As in the content dimension, traditional roles are still in operation: Practitioners answered from a "user" perspective and researchers from that of "provider." Practitioners have held committee (32%) and individual (25%) sessions at the workstation; computer coordinators have printed information and disseminated it to individuals (57%) and created notebooks (43%) of printouts. Researchers (18%) have solicited information from their colleagues.

The information provision function of the network appears to be functioning well. Sixty-eight percent of those interviewed reported that they had made requests for information and 66% of them received responses.

Has the Network Impacted School Reform?

It is too early to determine the network's impact on school reform with certainty, but we are encouraged by the indicators of potential:

* Dialogue focused around ten critical topics important for school reform
* More extensive and useful data base
* People (researchers and practitioners) getting the information they seek
* Increased contributions by researchers and practitioners
* Face-to-face interaction followed up by electronic interaction

The network has begun to expand the roles basic to school reform (Kerr, 1990). Educators are reaching out, looking for new ideas, and in some cases, re-examining their practices. Those are certainly good signs.

Barriers are also common. Time and resources pose a major problem. Both researchers and practitioners have other pressing agendas for their time. The teaching environment does not easily provide the time or space for network activity. Furthermore, the impact is severely limited by problems of access--one computer to an entire school. This forces much of the interaction to be done with paper copy, eliminating one of the advantages of electronic data base.

Conclusions

We have drawn a number of conclusions from our investigation of the IBM-NEA-MIL School Renewal Network to date which might be of value to others engaging in similar networking ventures:

* **Planning and design.** A good start with proper support is essential because of the inherent dilemmas in a venture of this type: People will use the network only if it appears

useful; but the network can't have any substance until people interact with and contribute to it.

* **Network structure**. Because the original sessions were not exhaustive of the scope of the four commonplaces, most papers were entered under a generic "information" heading, and the data base became disorganized. The careful construction of the revised network structure and careful definition of network topics eliminated most difficulties.

* **Network coordinators**. Situations in which a single workstation must serve and involve many others require exceptional coordinators. They must be able to receive and to give training, convey the value of the enterprise to their colleagues, encourage involvement by others, and organize and disseminate information.

* **Time and access**. Time was, above all else, the major problem with the network. Scarcity of time inhibits computer use, information dissemination, and faculty involvement activities. Inconvenient locations also inhibit use. In particular, limited access by other faculty/staff members necessitates the printing out of nearly all papers and the minimal use of the data base functions of the computer. Network effectiveness (as judged by faculty invovlement with the knowledge base) is thus constrained by the size of the faculty and the extent of their access to the network.

* **Incentives**. Busy people need incentives to take on an additional, ill-defined, and complex task. Clearer definitions of roles, provision of stipends for network activity, and the camaraderie and shared purpose conveyed through the Boca Raton conference were incentives. These seemed particularly important in increasing the researcher role.

* **Connectedness**. Links to other Project structures (e.g., conferences, newsletter, staff visits and contacts) and a continuing common purpose have strengthened network impact.

* **Support and training**. Periodic training and face-to-face interaction are essential throughout the process. Content and process facilitators keep the dialogue moving and nudge or assist participants. Early support, in particular, must include prompt technical

assistance on an as-needs basis for operation and hardware to prevent early discouragement.

* **Research-practice interaction**. True research-practice interaction requires the learning of new roles and skills, content relevant to both researcher and practitioners, contributions from both role groups, and a willingness to take risks. By nature, the specificity and focus of the contributions differs for the two groups. As the network matures, it will be important to observe how these natural differences are accomodated in dialogue. As such, observation of network activity may prove significant in understanding the elements of effective research-practice dialogue.

* **Network development**. Networks take time to develop, and they appear to progress through successive stages. In our first year, more attention was devoted to technical issues and less to substance. This pattern reversed itself in the second year. True dialogue is just beginning to develop, and we predict that the "frank discussion" described by Phillips and Pease (1985) may increase as the network matures.

A "Validity Check." Subsequent to the design of this investigation, we became aware of another computer network designed to promote knowledge use and collegial exchange among teachers. West and McSwiney's (1989) report of the first year of operation of the Science Teachers' Network mirrored many of our findings and validated their significance to the issue of teacher networking. They reported similar observations for the importance of ease of use, convenience, low cost, the asynchronous system (ability to dial server separately from information entry), motivation, periodic face-to-face contact among network participants, variation in levels of use, and the faciliator's role.

Differences seem to exist between the two networks in the focus of the contributions. Like our practitioners, their teachers sought and valued concise, practical, and situation-specific information that they can apply to their work. Unlike the pattern in our practitioner papers, however, their teachers' entries described very specific topics. Rather than inhibiting, ambiguity spawned responses from multiple interpretations. In the MIL network

(particularly in the first year), many papers (and particularly requests) were global and ambiguous about need and intent; these often received no responses whatsoever. The difference might be explained in several ways. First of all, MIL practitioners had been accustomed to making broad information requests of the MIL Project office and probably saw the network as an extension of this function. Another factor might be the varied teaching assignments of our teachers--Pre-kindergarten through Grade 12 with corresponding variation in interest and expertise. In contrast, the Science Teachers' Network focused entirely on secondary science. West and McSwiney (1989) recommend a large membership to meet the diverse needs of the members; perhaps the MIL network contains less than a critical mass of participants when the variety of interests is factored in. On the other hand, too many users might make the paper volume unwieldy. The assignment of schools to focus topics certainly enhanced the dialogue; thus, the issue may be one of task focus rather than numbers.

One striking difference was the absence of mention of time as an inhibitor by the science teachers. Perhaps, since all the interchange occurred around science, there was less material irrelevant to the user's needs and interests to be read and deleted. An even greater factor may have been that the the science teachers were individual users--not responsible for disseminating information and encouraging use by their peers. In this regard, MIL's network differs greatly in focus; that is, not only are we attempting to build collegial exchange about knowledge and experience, but we are intending to develop "facultiness" as a significant requirement for school renewal.

Overall, the experiences of the two networks are highly parallel. West and McSwiney's (1989) summary statement captures our thoughts about this type of networking: Computer systems and networking software "provide only the medium for **activities**, which themselves must be thoughtfully designed to meet teachers' interests and to support the demands of their work" (West and McSwiney, 1989, p. 10).

References

Berliner, D. (undated). Readings in educational research: A series for educators. Unpublished manuscript.

Castle, S. Rackcliffe, G., & Ward, N. (1988, April). Teacher empowerment through knowledge: Linking research and practice for school reform. Symposium presented at the Annual Meeting of the American Educational Research Association, New Orleans. (ERIC Document Reproduction Service No. ED 296 999)

Fleming, D. S. (1988, April). The literature on teacher utilization of research: Implications for the school reform movement. In S. Castle (Ed.), Teacher empowerment through knowledge: Linking research and practice for school reform. Symposium presented at the Annual Meeting of the American Educational Research Association, New Orleans. (ERIC Document Reproduction Service No. ED 296 999)

Harasim, L., & Johnson, E. M. (1986). Educational applications of computer networks for teachers/trainers in Ontario. Toronto: Ontario Department of Education. (ERIC Document Reproduction Service No. ED 276 398)

Jaquez, C. (1989). Messages from teachers to researchers. In C. Livingston & S. Castle (Eds.), Teachers and research in action (pp. 84-89). Washington, DC: National Education Association.

Kerr, S. (1990, January). Technology in the schools. Presentation to Seattle Public Schools--Zone 3.

Livingston, C. & Castle, S. (1989). Teachers and research in action. Washington, DC: National Education Association.

Mastery In Learning. (1988). [Information packet]. Washington, DC: NEA/Mastery In Learning Project.

Mastery In Learning Project. (1989). [Brochure, revised edition]. Washington, DC: NEA Mastery In Learning Project.

McClure, R. M. (1989). Practicing theory: The knowledge base and school reform. In C. Livingston & S. Castle (Eds.), Teachers and research in action (pp. 7-12). Washington, DC: National Education Association.

Michaels, K. (1988). Caution: Second-wave reform taking place. Educational Leadership, 45, 3.

Morrison, J. L. (1987, April). A personal experience with computer conferencing: Problems and possibilities. Paper presented at the Annual Meeting of the American Educational Research Association, Washington, DC. (ERIC Document Reproduction Service No. ED 286 488)

National Foundation for the Improvement of Education: Christa McAuliffe Institute. (1988, November). Emerging roles of teachers. Featured presentation at the National School Board Association Conference, Institute for the Transfer of Technology Education, Dallas, TX.

Office of Technology Assessment. (1988). Power on! Washington, DC: Author.

Phillips, A. F., & Pease, P. S. (1985). Computer conferencing and education: Complementary or contradictory concepts? Paper presented at the Annual Meeting of the International Communication Association, Honolulu. (ERIC Document Reproduction Service No. ED 261 428)

Schnesk, J., & Rackliffe, G. (1989). Faculty decision making: Sources of information. In C. Livingston & S. Castle (Eds.), Teachers and research in action (pp. 69-83). Washington, DC: National Education Association.

Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. Harvard Educational Review, 57, 1-22.

Toles, M. T. (1983). Creating electronic communities: Mass and vernacular technologies for interpersonal communication via computer. Dissertation Abstracts International, 44, 06A. (University Microfilms No. 83-21,908)

West, M. M., McSwiney, E. (1989). Computer networking for collegial exchange among teachers: A summary of findings and recommendations (Contract OERI-400-83-00410. Washington, DC: Office of Educational Research and Improvement. (ERIC Document Reproduction Service No. ED 182 465)

Table 1

Primary Data Sources for Research Questions

	Network Log Files[a]	Content Analysis of Network Papers[a]	User Interviews[b]
Question 1a: Use over time	X		X
Question 1b: Use--Inhibitors			X
Question 1c: Use--Facilitators			X
Question 2: Content over time		X	
Question 3: Researcher-Practitioner Interaction		X	X
Question 4: Impact on school reform		X	X

Notes: [a] data from all users
[b] data from target users (researchers and practitioners)

Table 2

Number of Workstation Sites by User Type

	January 1989	January 1990
MIL Practitioner Sites	26	31 *
Other Practitioner Sites	9	11
Researcher Sites	13	17
IBM Sites	5	8
MIL Staff Sites	8	10
Invisible Users and Shadowers	1	8
Special Projects		3
Total	62	88

Note: * Increase represents additional (home) workstations, not additional MIL sites

Table 3

Network Use Across Time

Activity Type	Activity Frequency				
	J '89	A '89	O-N '89	J '90	% Change
Days Called	380	376	440	610	+ 60.5
Times Called	833	725	609	1044	+ 25
Messages Received	535	533	987	1536	+ 187
New Papers Requested	577	489	606	769	+ 33
New Papers Received	1736	2885	3197	9279	+ 434
Messages Sent	459	334	561	551	+ 20
Papers Sent	80	99	96	209	+ 161

Note: Percent change calculated January '89 to January '90

Table 4

Network Contributions across Time by Primary User Groups

	Activity Frequency							
	J '89		A '89		O-N '89		J '90	
Role Group	n	%	n	%	n	%	n	%
				Messages Sent				
MIL Practitioners	149	32	115	34	271	48	175	32
Researchers	6	1	5	1	25	4	120	22
MIL Staff	262	57	183	55	233	42	201	36
IBM	33	7	25	7	7	1	29	5
Network Total	459		334		561		551	
				Papers Sent				
MIL Practitioners	49	61	*71	72	50	52	89	43
Researchers	2	3	9	9	5	5	57	27
MIL Staff	26	33	16	16	38	40	55	26
IBM	2	3	3	3	2	2	1	-
Network Total	80		*99		96		209	

Note: *Includes 31 papers sent by students to their penpals

Table 5

Facilitators to Network Use

	Practitioner Responses	Researcher Responses	Total	Percentage
		Year One		
Training	8	-	8	18
Interaction	5	-	5	11
Documentation	3	2	5	11
MIL Staff	3	2	5	11
Suggestions	2	2	4	9
Practice	3	-	3	7
		Year Two		
Boca conference	18	8	26	59
Interaction	7	1	8	18
Manual/Guide	3	3	6	14
MIL Staff	3	3	6	14
More/better data base	5	0	5	11
Topics defined	2	3	5	11
Meeting people	4	1	5	11
More Users	3	0	3	7

Table 6

Inhibitors to Network Use

	Practitioner Responses	Researcher Responses	Total	Percentage
		Year One		
Time	13	2	15	34
Learning software	4	1	5	11
Technical problems	3	1	4	9
Fear of computer	3	-	3	7
		Year Two		
Time	28	2	30	68
Fear of computer	3	0	3	7
Role unclear	-	3	3	7

Table 7

Number and Percentage of Papers by Type and Time Period

	J '89		A '89		O-N '89		J '90	
	n	%	n	%	n	%	n	%
Request	33	46	24	39	20	22	37	19
Response	11	15	14	23	15	16	51	26
Information	18	25	21	34	35	38	72	36
Discussion	9	13	3	5	22	24	40	20
Total		71		62		92		200
				*93				

Note: *represents the count including the 31 papers sent by students to their penpals

Table 8

Conversation Development over Time

	Conversations			
Number of links	J '89	A '89	O-N '89	J '90
1	6	13	11	23
2	1	1	1	7
3	1		4	7
4	1			
5			1	4
over 5			3	

Table 9

Overall Content of Network Papers over Time

	J '89	A '89	O-N '89	J '90
New Curricular Focus	6	4	8	14
New Instructional Strategy	2	1	2	16
Student Assessment/ Reporting	10	3	-	11
School/Classroom Organization	-	4	7	23
Exceptional Students	7	2	-	11
At-Risk or Low Achieving Students	1	8	10	25
Equity Issues	-	-	3	2
Multicultural Issues	1	-	6	1
Out-of-school Issues Impacting Schools	3	1	5	-
Censorship	-	-	-	7
Parent/Community Involvement	-	1	5	8
Student Self-Esteem	1	-	1	2
Student Behavior/ Discipline	2	3	1	8
Student Learning/ Learning Styles	-	1	1	11
Resources/Programs/ Workshops	9	19	8	48
Current Instructional Practices: What we do	4	2	7	29

Table 9 (Continued)

	J '89	A '89	O-N '89	J '90
Examination of Current Practice	-	1	-	7
Classroom Use of New Technologies	2	2	-	9
RE Student Use of PSInet	2	2	1	2
PSInet Technical Issues	12	7	13	16
Electronic Dialogue/ Faculty Involvement	8	10	21	18
OERI Grant-Related Activities/Issues	-	-	38	6
General Restructuring/ School Reform	3	8	4	18
Site-Based Decision Making	5	5	-	9
Faculty Issues--Roles, Collegiality, Climate	2	3	9	9
Linking Research and Practice	2	-	14	-
MIL Activities	7	5	2	2
Funding	-	2	1	1
Misc.	4	1	3	17

Table 10

Content of Network Papers from All Users by Paper Type over Time

	J '89			A '89			O-N '89			J '90		
	Q/R	A/D	I	Q/R	A/D	I	Q/R	A/D	I	Q/R	A/D	I
New Curricular Focus	6	-	-	1	2	1	3	4	1	2	4	8
New Instructional Strategy	1	-	1	-	-	1	1	-	1	2	7	7
Student Assessment/ Reporting	5	2	3	1	1	1	-	-	-	3	6	2
School/Classroom Organization	-	-	-	1	-	3	3	3	1	5	14	4
Exceptional Students	4	2	1	1	-	1	-	-	-	3	7	1
At-Risk or Low Achieving Students	1	-	-	5	2	1	4	2	4	2	7	16
Equity Issues	-	-	-	-	-	-	1	1	1	-	1	1
Multicultural Issues	1	-	-	-	-	-	1	2	3	-	-	1
Out-of-school Issues Impacting Schools	2	1	-	-	1	-	1	2	2	-	-	-
Censorship	-	-	-	-	-	-	-	-	-	1	5	1
Parent/Community Involvement	-	-	-	1	-	-	4	-	1	1	1	6
Student Self-Esteem	1	-	-	-	-	-	1	-	-	-	1	1
Student Behavior/ Discipline	1	1	-	1	2	-	1	-	-	1	5	2
Student Learning/ Learning Styles	-	-	-	-	-	1	-	-	1	4	6	1
Resources/Programs/ Workshops	3	3	3	5	5	9	1	3	4	1	15	32
Current Instructional Practices: What we do	3	1	-	2	-	-	-	-	7	-	6	23

Table 10 (Continued)

	J '89			A '89			O-N '89			J '90		
	Q/R	A/D	I	Q/R	A/D	I	Q/R	A/D	I	Q/R	A/D	I
Examination of Current Practice	-	-	-	1	-	-	-	-	-	1	4	2
Classroom Use of New Technologies	1	-	1	1	1	-	-	-	-	2	3	4
RE Student Use of PSInet	1	1	-	-	-	2	1	-	-	1	1	-
PSInet Technical Issues	2	7	3	2	1	4	3	8	2	3	11	2
Electronic Dialogue/ Faculty Involvement	1	2	5	2	3	5	2	17	2	1	12	5
OERI Grant-Related Activities/Issues	-	-	-	-	-	-	2	24	12	3	3	-
General Restructuring/ School Reform	-	1	2	2	2	4	-	2	2	1	6	11
Site-Based Decision Making	1	4	-	-	-	5	-	-	-	2	6	1
Faculty Issues--Roles, Collegiality, Climate	1	-	1	-	1	2	-	7	2	3	8	1
Linking Research and Practice	2	-	-	-	-	-	1	10	3	-	-	-
MIL Activities	3	1	3	3	1	1	-	1	1	1	-	1
Funding	-	-	-	2	-	-	-	-	1	-	-	1
Misc.	-	-	4	-	-	1	1	-	2	5	6	6

Note: Abbreviations for paper type: Q/R--question or request, A/D--answer or discussion, I--information (not in response to a question or request)

Table 11

Content of Network Papers from Practitioners by Paper Type over Time

	J '89			A '89			O-N '89			J '90		
	Q/R	A/D	I	Q/R	A/D	I	Q/R	A/D	I	Q/R	A/D	I
New Curricular Focus	6	-	-	-	1	-	2	2	-	2	4	3
New Instructional Strategy	1	-	1	-	-	1	1	-	-	1	3	1
Student Assessment/ Reporting	4	-	1	1	-	-	-	-	-	3	3	1
School/Classroom Organization	-	-	-	1	-	2	3	-	-	5	1	3
Exceptional Students	4	2	1	1	-	1	-	-	-	3	4	-
At-Risk or Low Achieving Students	1	-	-	5	1	-	3	-	2	2	2	4
Equity Issues	-	-	-		-	-	-	1	-	-	-	-
Multicultural Issues	1	-	-	-	-	-	-	2	2	-	-	-
Out-of-school Issues Impacting Schools	1	-	-	-	1	-	1	1	1	-	-	-
Censorship	-	-	-	-	-	-	-	-	-	-	3	-
Parent/Community Involvement	-	-	-	1	-	-	2	-	1	1	-	-
Student Self-Esteem	1	-	-	-	-	-	1	-	-	-	-	-
Student Behavior/ Discipline	1	1	-	1	1	-	1	-	-	1	5	-
Student Learning/ Learning Styles	-	-	-	-	-	-	-	-	1	4	-	-
Resources/Programs/ Workshops	3	2	-	4	3	6	1	1	1	1	6	3
Current Instructional Practices: What we do	3	1	-	2	-	-	-	-	7	-	6	10

Table 11 (Continued)

	J '89			A '89			O-N '89			J '90		
	Q/R	A/D	I	Q/R	A/D	I	Q/R	A/D	I	Q/R	A/D	I
Examination of Current Practice	-	-	-	1	-	-	-	-	-	1	-	2
Classroom Use of New Technologies	-	-	1	1	1	-	-	-	-	2	1	3
RE Student Use of PSInet	1	1	-	-	-	2	1	-	-	1	-	-
PSInet Technical Issues	2	-	-	2	-	1	2	8	-	2	4	1
Electronic Dialogue/ Faculty Involvement	1	1	2	1	2	3	2	11	-	1	5	2
OERI Grant-Related Activities/Issues	-	-	-	-	-	-	2	17	-	3	1	-
General Restructuring/ School Reform	-	-	-	2	-	1	-	-	1	-	2	3
Site-Based Decision Making	1	1	-	-	-	-	-	-	-	1	3	-
Faculty Issues--Roles, Collegiality, Climate	1	-	1	-	-	-	-	5	1	1	2	1
Linking Research and Practice	2	-	-	-	-	-	-	3	3	-	-	-
MIL Activities	1	-	1	2	1	-	-	1	-	1	-	-
Funding	-	-	-	2	-	-	-	-	-	-	-	-
Misc.	-	-	1	-	-	1	1	-	2	3	5	-

Note: Abbreviations for paper type: Q/R--question or request, A/D--answer or discussion, I--information (not in response to a question or request)

Figure 1

NEA MASTERY IN LEARNING PROJECT

Phases in School Renewal

	Profiling the School Inventorying the Faculty	Building Capacity for Renewal		Cultivating Comprehensive Change
1985-1986	1986-1987	1987-1988	1988-1989	1989-1990
PILOT YEAR	YEAR 1	YEAR 2	YEAR 3	YEAR 4

Figure 2

NEA MASTERY IN LEARNING PROJECT

Chronology of Events Impacting Use of Educational R & D

Printed knowledge base resources disseminated

Pilot Activities

Project Consultant Conference–Sept.

MIL Fall Conference Computer network training–Oct.

OERI Grant–Oct.

Regional Training Sessions–Fall

Symposium at Scanticon; Prototype Computer Network–Oct.

MIL Fall Conference Network Topic Definitions–Oct.

Network Conference for Reserachers and Practitioners–Dec.

Data gathering and analysis: Faculty Inventory/School Profile

IBM-NEA-MIL School Renewal Network

Application process

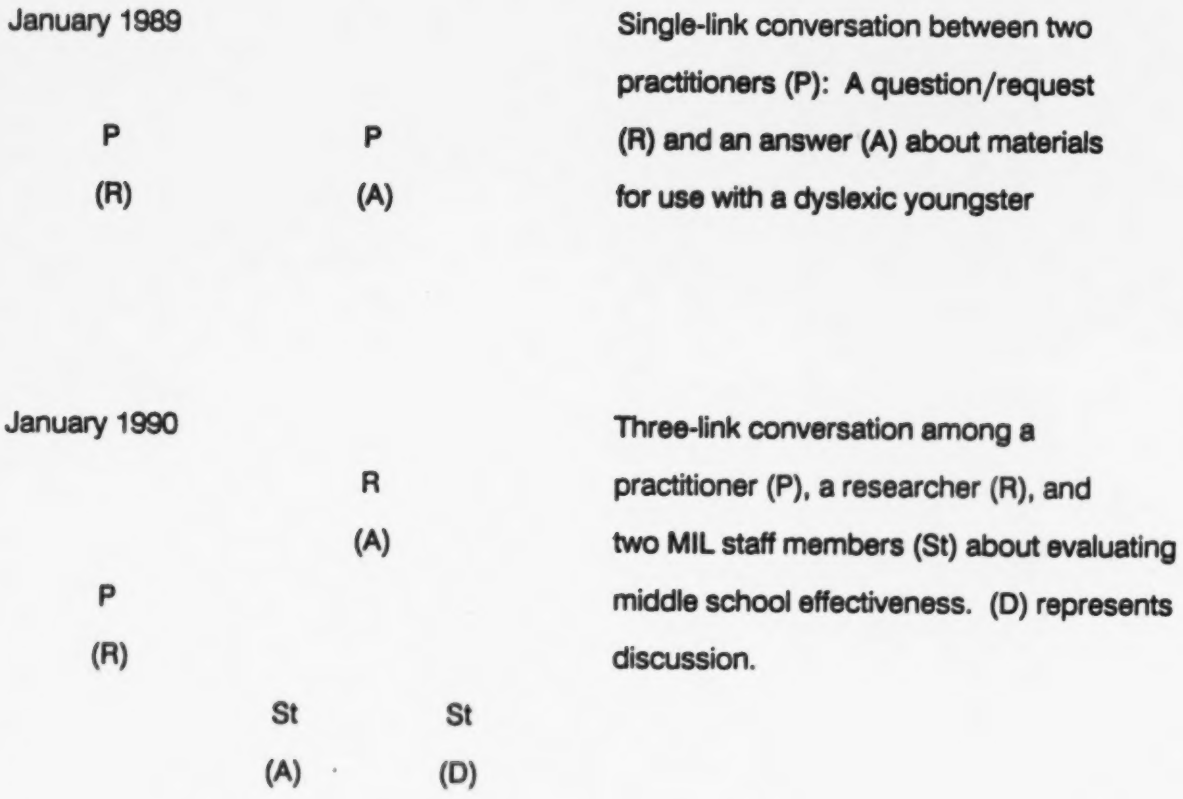
Identification of 27 Project Schools

Documentation and Site-Based Data Analysis

1985-1986	1986-1987	1987-1988	1988-1989	1989-1990
PILOT YEAR	YEAR 1	YEAR 2	YEAR 3	YEAR 4

Figure 3

Diagrams of Two Network Conversations



Appendix A

IBM/NEA - MASTERY IN LEARNING PROJECT SCHOOL RENEWAL NETWORK

INITIAL CONCEPTUAL OVERVIEW

This overview was created in the MIL office so that we would have content to begin working with at the October meeting. From this point on, the network conferences and sessions will be generated by the participants. You may begin a conference or session on any topic you wish to discuss.

CONFERENCES:

INFORMATION **	ROLE GROUPS	TEACHING	LEARNING	CURRICULUM	SCHOOL CULTURE	RESTRUCTURING
SESSIONS:						
MIL Bulletin *	Consultants	Cooperative Learning	Evaluation	Critical Thinking	Visions	Exemplars
Net Bulletin **	Steering Committee Chairs	Discipline	Grouping	Curriculum	Empowerment	Documenting
Discussion **	Network Coordinators		Self-Directed Learning	Integration		
Circuit *	Principals			Writing		
Newsletter *	Documenters					
Network	Sub Committee Chairs					
(DC Tourist)						

** - Required of All Sites

* - Required of MILP Sites

( )- For Annual Meeting Only

Appendix B

IBM/NEA MASTERY IN LEARNING SCHOOL RENEWAL NETWORK

PSI-NET CONFERENCE AND SESSION STRUCTURE
&
CRITICAL TOPICS IN DEPARTMENT OF EDUCATION GRANT

INFORMATION
- MIL
- NETWK-WIDE (Network-Wide)
- NETWORK-USE
- KEY-WORDS

*AT-RISK-STU (At-Risk Students)
- ECHILD-ELEM (Early Childhood/Elementary)
- SECONDARY
- OTHER

*CURRICULUM
- REDESIGN
- MATERIALS
- *ASSESSMENT (Authentic Student Assessment)
- OTHER

*POS-SCH-CLI (Positive School Climate)
- DISCIPLINE
- STU-AS-WRKR (Student As Worker)
- OTHER

*RESTRUCTUR (Restructuring)
- SITE-B-DEC (Site-based Decision Making)
- COLLEGIAL (Collegiality)
- VISIONS
- OTHER

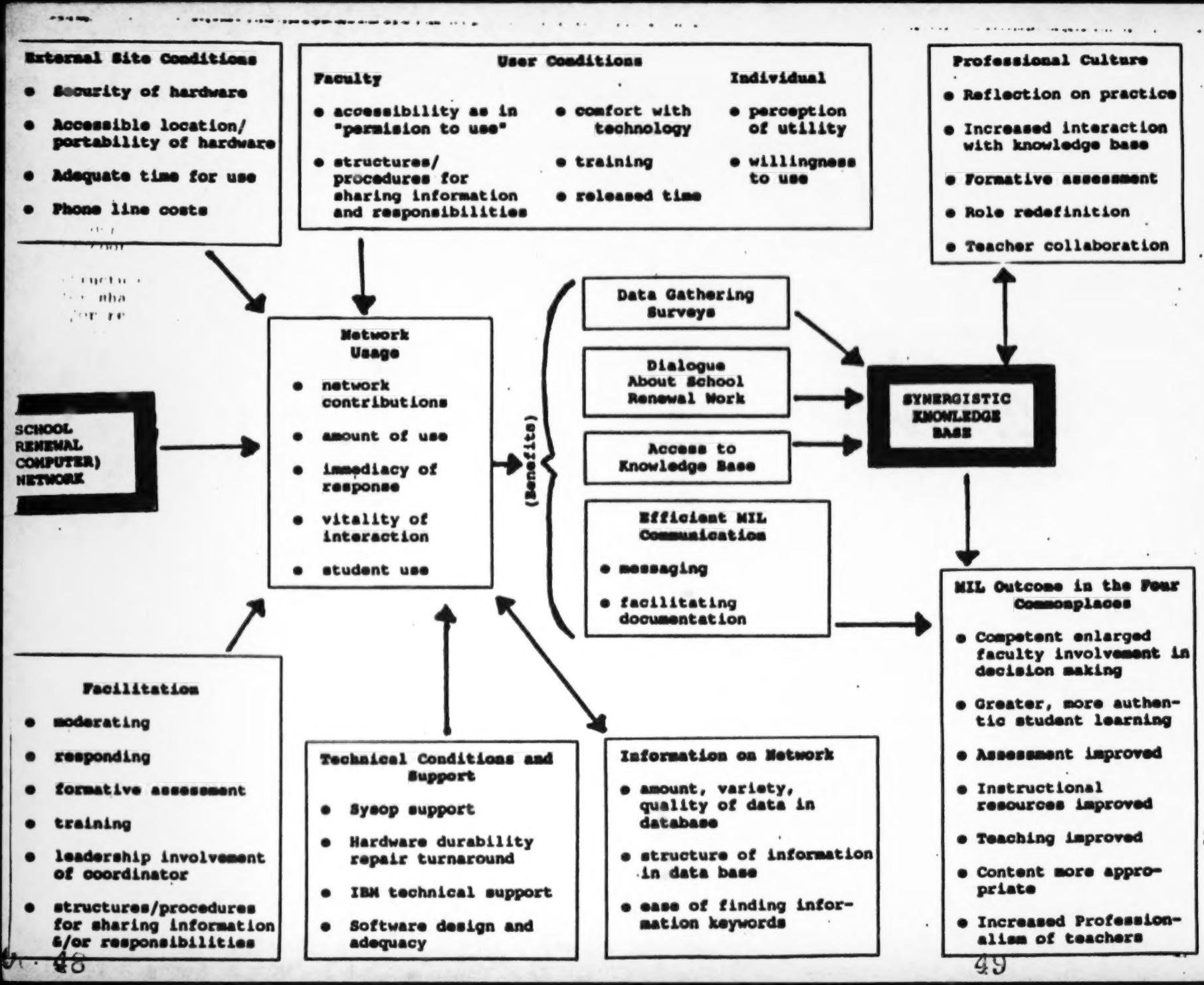
INSTR-STRAT (Instructional Strategies)
- *COOP-LNG (Cooperative Learning)
- *THINKING (Critical Thinking/Metacognition)
- OTHER

*NET-TECH
- NETWORKING
- TECHNOLOGY

*PAR-COM-INV (Parent/Community Involvement)
- PARTNERSHIP
- VOLUNTEERS
- HOME-HELP
- OTHER

*SCH-CR-ORG (School/Classroom Organization)
- GROUPING
- CLASSRM-ORG (Classroom Organization)
- SCH-ORGANIZ (School Organization)
- STUDENT-USE

*OERI Grant Critical Topics


External Site Conditions
• Security of hardware
• Accessible location/ portability of hardware
• Adequate time for use
• Phone line costs
User Conditions
Faculty
• accessibility as in "permision to use"
• structures/ procedures for sharing information and responsibilities
• comfort with technology
• training
• released time
Individual
• perception of utility
• willingness to use
Professional Culture
• Reflection on practice
• Increased interaction with knowledge base
• Formative assessment
• Role redefinition
• Teacher collaboration
SCHOOL RENEWAL COMPUTER) NETWORK
Network Usage
• network contributions
• amount of use
• immediacy of response
• vitality of interaction
• student use
(Benefits)
Data Gathering Surveys
Dialogue About School Renewal Work
Access to Knowledge Base
Efficient MIL Communication
• messaging
• facilitating documentation
SYNERGISTIC KNOWLEDGE BASE
MIL Outcome in the Four Commonplaces
• Competent enlarged faculty involvement in decision making
• Greater, more authentic student learning
• Assessment improved
• Instructional resources improved
• Teaching improved
• Content more appropriate
• Increased Professionalism of teachers
Facilitation
• moderating
• responding
• formative assessment
• training
• leadership involvement of coordinator
• structures/procedures for sharing information &/or responsibilities
Technical Conditions and Support
• Sysop support
• Hardware durability repair turnaround
• IBM technical support
• Software design and adequacy
Information on Network
• amount, variety, quality of data in database
• structure of information in data base
• ease of finding information keywords

Appendix C

Appendix D

IBM/NEA-MIL School Renewal Network

Interviewer_____

Date_____

1. Respondent_____
2. Topic(s):_____
3. When did your workstation first sign-on to the server?
   _____
   _____
4. Have you joined all the conferences? _____
5. Do you know how? _____
6. Location of workstation? _____
7. Reason for location? _____
8. Who decided location? _____
9. Do you have a PSInet worksation at home? _____
10. Did you get it since joining PSInet? _____
    Do you wish you had one?_____
11. How is working at home different? _____
12. Workstation useage: How many people use it? _____
13. What % of fauculty/staff: _____
14. For PSInet only? _____
15. If no, what else is it used for? _____
16. Who trained the PSInet users? _____
17. When?_____
18. How are you using OERI money? _____
    _____

19. How was the decision made? _____

_____

20. Are other staff members involved in using/contributing to the knowledge base? _____

_____

_____

21. What INTERNAL structures do you use for collecting and disseminating information? _____

22. What % of papers do you insert? _____

23. What % of papers do you print? _____

24. What % of message to you insert? _____

25. What % messages do you print? _____

26. Have you sent messages to other sites? _____

27. Researchers?_____ Schools?_____ MIL office?_____ IBM?_____

28. Have you sent papers requesting information? _____

_____

_____

29. Have you received answers to requests? _____

_____

_____

30. Have you contributed information to others?_____

_____

_____

31. Any thoughts on paper length? _____

32. Are you familiar with other electronic networks? _____

33. Which ones? _____

34. How freguently do you use them? _____

35. What factors FACILITATED USE of the computer network?
During year 1 (88-89): _____

During year 2 (88-89): _____

36. What factors INHIBITED USE of the computer network? _____

During year 2 (89-90): _____

37. Did the computer network FACILITATE use/generation of the knowledge base? _____

How, year 1:_____

_____

_____

How, year 2: _____

_____

_____

38. Are you comfortable with PSInet? _____

_____

_____

39. Questions?_____

_____

_____

40. What would you change about PSInet? _____ _____

_____

41. What would you change about other aspects of the network? ___

_____

_____

42. Other comments, recommendations, concerns? _____

_____

_____